CLAIMS

1. A chip resistor comprising a chip-form resistor having a front surface and a rear surface provided at an interval in a thickness direction and a pair of side faces extending in a fixed direction at an interval in a width direction, and a plurality of electrodes provided in series on the rear surface of the resistor at intervals in the fixed direction,

wherein the chip resistor also comprising:

a first insulation layer covering regions between the plurality of electrodes on the rear surface of the resistor; and

a second insulation layer covering the pair of side faces of the resistor.

2. The chip resistor according to claim 1, further comprising a third insulation layer covering the front surface of the resistor.

3. The chip resistor according to claim 2, wherein at least two of the first through third insulation layers are formed from an identical material.

4. The chip resistor according to claim 2, wherein the thickness of each of the electrodes is greater than the thickness of the first insulation layer.

5. The chip resistor according to claim 2, wherein two or more electrodes are provided as the plurality of electrodes.

6. The chip resistor according to claim 1, wherein the resistor comprises a pair of end faces provided at an interval in the fixed direction, and a solder layer is formed on each of the end faces.

7. The chip resistor according to claim 1, wherein the plurality of electrodes is provided at a remove from edges of the rear surface of the resistor in the fixed direction.

8. A manufacturing method for a chip resistor, comprising the steps of:

producing a bar-form resistor aggregate in which a plurality of electrodes is provided on a rear surface of a bar-form resistor material, the plurality of electrodes being arranged at intervals in a length direction of the resistor material, and regions between the plurality of electrodes on the rear surface and a pair of side faces of the resistor material are covered with first and second insulation layers; and

dividing the resistor aggregate into a plurality of chip resistors by cutting the resistor aggregate in a plurality of locations in a length direction thereof.

9. The manufacturing method for a chip resistor according to claim 8, wherein the step of producing the bar-form resistor aggregate comprises the steps of:

providing a pattern-formed insulation layer and a conductive layer serving as the electrodes on one surface of a plate serving as a resistor material, and then dividing the plate into the bar-form resistor material; and

forming an insulation layer on the pair of side faces of the bar-form resistor material.

10. The manufacturing method for a chip resistor according to claim 8, wherein the step of producing the bar-form resistor aggregate comprises the steps of:

pattern-forming an insulation layer on one surface of a plate serving as a resistor material, and then dividing the plate into the bar-form resistor material; and

forming an insulation layer on the pair of side faces of the bar-form resistor material, and forming the plurality of electrodes on the surface on which the pattern-formed insulation layer is formed.

11. The manufacturing method for a chip resistor according to claim 8, further comprising a step of forming a third insulation layer covering a front surface of the resistor material prior to dividing the resistor aggregate into the plurality of chip resistors.

12. A manufacturing method for a chip resistor, comprising the steps of:

producing a bar-form resistor aggregate provided with a

plurality of electrodes on a rear surface of a bar-form resistor material, the plurality of electrodes being arranged at intervals in a length direction of the resistor material, and a first insulation layer covering regions between the plurality of electrodes;

dividing the resistor aggregate into a plurality of chip resistors having protruding resistor side faces by cutting the resistor aggregate in a plurality of locations in a length direction thereof; and

forming a second insulation layer on the side faces of each of the resistors of the plurality of chip resistors.

13. A manufacturing method for a chip resistor, comprising the steps of:

preparing a frame constituted by a conductive member comprising a plurality of plate-form portions extending in a fixed direction, each plate-form portion having a front surface, a rear surface, and a pair of side faces, and a support portion for supporting the plurality of plate-form portions;

producing a plurality of bar-form resistor aggregates by forming, on either of the front surface and the rear surface of each of the plate-form portions, a plurality of electrodes arranged at intervals in the fixed direction and a first insulation layer positioned in regions between the plurality of electrodes, and by forming a second insulation layer on the pair of side faces of each of the plate-form portions; and

dividing each of the resistor aggregates into a plurality

of chip resistors such that each of the plate-form portions forms a plurality of chip-form resistors.

14. The manufacturing method for a chip resistor according to claim 13, wherein the step of forming a second insulation layer on the pair of side faces of each of the plate-form portions is performed after rotating the plate-form portions about an axis extending in a length direction thereof by twisting a connecting portion between each of the plate-form portions and the support portion of the frame such that the connecting portion deforms.

15. The manufacturing method for a chip resistor according to claim 14, wherein a frame in which the connecting portion is formed narrower than the plate-form portion is used as the frame.

16. The manufacturing method for a chip resistor according to claim 13, further comprising a step of forming a third insulation layer on one of the front surface and the rear surface of each of the plate-form portions opposite to the surface on which the first insulation layer is formed, before dividing the resistor aggregates into the plurality of chip resistors.

17. The manufacturing method for a chip resistor according to claim 16, wherein the step of producing the bar-form resistor aggregate comprises a step of forming the plurality of electrodes by plating processing after forming the first through third insulation layers on the plate-form portions.

18. A frame constituted by a conductive member comprising a plurality of plate-form portions extending in a fixed direction, each plate-form portion having a front surface, a rear surface, and a pair of side faces, and a support portion for supporting the plurality of plate-form portions,

wherein a connecting portion between each of the plate-form portions and the support portion is formed narrower than the plate-form portion.

19. The frame according to claim 18, wherein the support portion has a frame shape, and each of two end portions in a length direction of each of the plate-form portions is supported on the support portion via the connecting portion.

20. A chip resistor comprising a chip-form resistor having a front surface and a rear surface provided at an interval in a thickness direction and a pair of end faces provided at an interval in a fixed direction intersecting the thickness direction, and a plurality of electrodes provided on the rear surface of the resistor at intervals in the fixed direction,

wherein a solder layer is formed on each of the end faces of the resistor.

21. The chip resistor according to claim 20, wherein the solder layer covers the entirety of each of the end faces.

22. The chip resistor according to claim 20, further comprising a first insulation layer covering regions between the plurality of electrodes on the rear surface of the resistor.

23. The chip resistor according to claim 20, wherein a solder layer formed integrally with or separately to the solder layer is laminated onto each of the electrodes.

24. A manufacturing method for a chip resistor, comprising the steps of:

producing a bar-form resistor aggregate in which a plurality of electrode-forming conductive layers is provided on one of a front surface and a rear surface of a bar-form resistor material, the plurality of electrode-forming conductive layers being arranged at intervals in a width direction of the resistor material, and a solder layer is formed on a pair of side faces extending in a length direction of the resistor material; and

dividing the resistor aggregate into a plurality of chip resistors by cutting the resistor aggregate in a plurality of locations in a length direction thereof.

25. A manufacturing method for a chip resistor, comprising the steps of:

producing a chip resistor as yet unformed with a solder layer, in which a plurality of electrodes is formed at intervals in a fixed direction on one of a front surface and a rear surface of a chip-form resistor, and an insulation layer covering the

resistor is provided such that a pair of end faces of the resistor in the fixed direction is partially exposed; and

forming a solder layer on the pair of end faces of the resistor.

26. The manufacturing method for a chip resistor according to claim 25, wherein a plurality of the chip resistors as yet unformed with a solder layer is produced, and in the solder layer forming step, the solder layer is formed simultaneously on the plurality of chip resistors as yet unformed with a solder layer by barrel plating processing.

27. The manufacturing method for a chip resistor according to claim 25, wherein the step of producing the chip resistor as yet unformed with a solder layer comprises the steps of:

producing a bar-form resistor aggregate in which a plurality of electrode-forming conductive layers is provided on one surface of a front surface and a rear surface of a bar-form resistor material, the plurality of electrode-forming conductive layers being arranged at intervals in a length direction of the resistor material, and an insulation layer is formed on a pair of side faces extending in a length direction of the resistor material and a surface opposite the one surface; and

cutting the resistor aggregate in a plurality of locations in a length direction thereof.

28. The manufacturing method for a chip resistor according to claim 27, wherein the step of producing the bar-form resistor aggregate comprises the steps of:

providing a conductive layer serving as the electrodes on one surface of a plate serving as a resistor material; and

dividing the plate into the bar-form resistor material.

29. The manufacturing method for a chip resistor according to claim 27, wherein the step of producing the bar-form resistor aggregate comprises the steps of:

preparing a frame constituted by a conductive member comprising a plurality of plate-form portions; and

providing a conductive layer serving as the electrodes on one surface of each of the plate-form portions serving as the bar-form resistor material.

30. A chip resistor comprising a chip-form resistor having a front surface and a rear surface provided at an interval in a thickness direction and a pair of end faces provided at an interval in a fixed direction intersecting the thickness direction, and a plurality of electrodes provided on the rear surface of the resistor at intervals in the fixed direction,

wherein the plurality of electrodes is provided at a remove from edges of the rear surface of the resistor in the fixed direction.

31. The chip resistor according to claim 30, further comprising an insulation layer covering regions between the plurality of electrodes on the rear surface of the resistor.

32. The chip resistor according to claim 31, wherein the insulation layer covers regions between the plurality of electrodes and the edges on the rear surface of the resistor.

33. A manufacturing method for a chip resistor, comprising the steps of:

pattern-forming an insulation layer on one surface of a plate serving as a resistor material;

forming a conductive layer in a region of the one surface of the plate in which the insulation layer is not formed; and

dividing the plate into a plurality of chip-form resistors;

wherein the division of the plate is performed in a state in which a part of the conductive layer on the one surface of each of the resistors is formed as a pair of electrodes removed from each other and sandwiching a part of the insulation layer, and in which the pair of electrodes is removed from edges of the resistor in an arrangement direction of the electrodes.